

Figure 1

ATTCGGACAGTGACGCCATGCACTACGGTACCGTGCCCGTGGTAGCCTCCACCGGGCGCCTGGTCGACACCGTCAAGGAGGGCGTCACCGGCTTCCA
 TAAGCCGTGCTCACGTGCGGTACGTGATGCCATGGCAGCGGCACCATCGGAGGTGGCGCGCGGACAGCTGTGGCAGTTCCTCCCGCAGTGGCCGAAGGT
 S A R V H A M H Y G T V P V A S T G G L V D T V K E G V T G F H
 CATGGGCGCCCTGAACCCGACAGCTGGACGAGGCTGACGCCAGCGCCCTGGCCGCCACCGTGGCCGAGGAGGTGTTGCGGGGGCGCGCTAC
 GTACCGCGGGACTTGGGGCTGTTCGACCTGCTCCGACTGCGGTGCGGACCGCGGTGGCAGCGGCGCAGCTCGCTCCACAAACGCCCGCGCGGATG
 M G A L N P D K L D E A D A D A L A A T V R R A S E V F A G G R Y
 CCCGAGATGGTGGCCAACTGCATCAGCCAGGACCTGTCTGGTCCAAAGCCCGCCAGAGTGGAGGGCCTGTGGAGGAGGTGGTGTACGGCAAGGGG
 GGGCTCTACCAACCGGTGACGTAGTCGGTCTTGACAGGACCAAGTTCGGGGGGTCTTCAACCTCCCGGACGACCTCCTCCACACATGCCGTTCCTCCG
 P E M V A N C I S Q D L S W S K P A Q K W E G L L E V V Y G K G G
 GCGTGGCCACCGCCAAAGAGGAGATCAAGGTGCCCGTGGCCGAGAAGATCCCCGGGACCTGCCCGCGCTGTCTACGCCCCCAACACCTGAAGCC
 CGCACCGGTGGCGGTCTTCTCTCTAGTTCACGGGCAACGGCTCTTCTAGGGCCGCTGGACGGGCGGACAGGATGCGGGGTGTGGGACTTCGG
 V A T A K K E E I K V P V A E K I P G D L P A V S Y A P N T L K P
 CGTGTCCGCTCCGTGGAGGCAACGGCGCGCGCCGCGCCAAAGTTCGGCACCAACCGCCCGCCATGGCGCGTGGCGCGGACCAACCCCTCGGGCCCC
 GCACAGGCGGAGGCACCTCCCGTGGCGGGCGCGGGTTCAGCCGTGGTGGCGGGCGGTACCCGCGCACCGCGCTGGTGGGGAGCCCGGGG
 V S A S V E G N G A A P K V G T T A P A M G A W R A T T P S G P
 TCGCCCGCGCGCCACCCCAAGGTGACCACTACAAAGCCCGCCCTGCCCGCCACCGCCCAAGCCAGCCGCTGGCTCAAGCTGGCCGGTGAGGCCT
 AGCGGGCGCGCGGTGGGTTCACCTGGTGGATGTTCCGCGCGGACGGCGGTGGCGGTTCGGGTTCGGCGACCGGAGTTCGACCGGCCACTCCGGA
 S P A A A T P K V T T Y K P A L P A T A K P K T A G L K L A G E A S
 CCACCACCTCGACCTCGGAGAACGGCGTGCCTCCAAAGGCAACGGCAACGGTGCCTCCAGACCTCGGCTGCCAAGCCCTGGTCTCCGCGCG
 GGTGGTGGAGCTGGAGCCTCTTCCCGGACGAGGTTGCCGTTCGCGTTCGACGAGCGCGGAGTTCGAGCGGACCGGTTCGGGGACCGAGCGCGCG
 T T S T S E N G A A S N G N G A S A S K T S A A K P L V S A A
 CACCCGCAAGTCCGCGTAAAGCGGAGTAGCCGCGAGAGCGCGGACAGCATGAGCGGCTCGACCAAGCTGTGGCAGGAACGGCTGTAGCAGCGGACGGC
 GTGGCGGTTACGGCGGATTTCGCGGTATCGCGGTCTCCGCGCTGTCTGCTACTCGCGGAGTGGTTTCGACACCGCTCCTTGGCGACATCGTCCGCGTCCG
 T R K S A
 GGCGGCCACCGCGGAGGACGAGCTTGGCGGACGCGAGGGCGATGAGCTTAGCGGCGCGTGAGCATGGCAGCGGGAACGCTGTGTACTGAAATGTGTGTCAT
 CCGCGGTGGCGCTCCTCGTCCGAACGCCGTGCTCCCGCTACTCGAATCGCCGCGGACTCGTACCGTCCGCTTTCACACATGACTTTACACACCGTA
 GAGAGTGTGCTGTAATGAGTCGGTTTTTCGAGACCGGAGAAACCGCGTTTGGTTTTGTAGTGCAGGGCCCTGTGGTTTCGGTTTGGCCCCAAGTCCA
 CTCTCACAGCACGACATTACTTCAGCCCAAAACGCTCTGGCCCTCTTTGGGGCCAAACCAACCAACATCACGTCCCGGACACCAAGCCAAACGGGTTCAAGT

[illegible]

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5'UTR -

transit peptide of the GBSSI.

M A V A S T S R P S S A R P I V I N A A S F G V K K T A N

... variant peptide of the GBSSI ...
coding sequence of the cDNA of the GBSSI

CCAGCTGCTGCGTGAGCTTGCTCGTGGCTCCGCACGCAAGTCCACCTCGCGCTCGGCTGTTACTGGTGCCACTGGTGCCACTTGGCGCTGGACATCGTG
GGTCGACGACGCACCTCGAACGAGCACCAGGGCGTGCGTTCAGGTGGAGCGCGAGCCGACAATGACCACGGTGACCACGGTGAACGCGCGACCTGTAGCAC

transit peptide of the GBSSI

peptide of the GBSSI —
S T S R S A V
coding sequence of the cDNA of the GBSSI

O L L R E L A R G S A R K S T S R S A V T G A T G A T C A L D I V
 coding sequence of the cDNA of the GBSSI
 ATGGTTGCTGCTGAGGTCGCCCTTGGTCCAAGACGGCGGCTGGCGGATGTGACTGGTGGCCTGCCTATTGAGCTGGTCAAGCGCGGCCACCGCGTCA
 TACCAACGACGACTCCAGCGGGGAACAGGTTCTGCCCGCCGGACCCGCTACACTGACCACCGGACGGATAACTCGACCAGTTCGCGCCGGTGGCGCAG

coding sequence of the cDNA of the GBSSI¹

M V A A E V A P W S K T G G L G D Y T G G L P I E L V K R G H R V
coding sequence of the cDNA of the GBSSI

TGACCAATTGCCCTCGCTACGACCAGTACGCTGACGCCTGGGACACCTCGGTGGTCTGGACATCATGGCGGAGAAGTCCGCTACTCCACTCCATCAA
ACTGGTAACGGGAGCGATGCTGGTCATGCGACTGCGGACCTGTGGAGCCACCAGCACCTGTAGTACCCGCTCTTCCAGGCGATGAAGGTGAGGTAGTT

coding sequence of the cDNA of the GBSSI

M T I A P R Y D Q Y A D A W D T S V V V D I M G E K V R Y F H S I K
coding sequence of the cDNA of the GBSSI
GAAGGGCGTGCAACCGCGTGTGGATTGACCACCCCTGGTTCTGGCCAAAGTCTGGGGCAAGACCGGCTCCAAGCTGTACGGCCCCCGCTCCGGCGCTGAC
CTTCCCGCACGTGGCGCACACCTAACTGGTGGGGACCAAGGACCGGTTCCAGACCCCGGTTCTGGCCGAGGTTTCGACATGCCGGGGGCGAGGCCCGCGACTG

coding sequence of the cDNA of the GBSSI¹

K G V H R V W I D H P W F L A K V W G K T G S K L Y G P R S G A D

Figure 2 (continued 1)

TACCTGGACAACCAAGCGCTTCGCCCTGTTCTGCAAGGCCGCTATTGAGGCTGCCCGCGTGCTGCCCTTCGGCCCCGGCGAGGACTGCGTCTTCGTGG
ATGGACCTGTTGGTGTTCGCGAAGCGGGACAAAGACGTTCCGGCGATAACTCCGACGGGCGCACGACGGGAAGCCGGGGCCGCTCTGACGCAGAAGCACC

Y L D N H K R F A L F C K A A I L E A A R V L P F G P G E D C V F V
coding sequence of the cDNA of the GBSST

CCAACGACTGGCACTCCGCCCTGGTGCCTCTGCTGAAGGACGAGTACCAGGCCCAAGGCCAAGTCGGTCTGGCTATCCACAA
GGTTGCTGACCGTGAGCGGGACCACGGGCAGGACGACTTCCTGCTCATGTGCGGTTCCCGGTCAAGTGGTTCAGCCACGACCGATAGGTGT

A N D W H S A L V P V L L K D E Y Q P K G Q F T K A K S V L A I H N
coding sequence of the cDNA of the GBSS1

CATCGCCTTCCAGGGCCGCATGTGGGAGGAGGCTTCAAGGACACGAAGCTGCCCCAGGCCCTTTGACAAGCTGGCCTTCTCGACGGCTATGCCAAAGTAGCGGAAGGTCCCGGCGTACACCCTCTCCGAAAGTTCCTGTGCTTCGACGGGGTCCGGCGGAAACTGTTCCGACCGGAAGAGCCTGCCCGATACGGTTC

I A² F Q G R M W E E A F K D T K L P O A A F D K L A F S D G Y A K

GTTACAC TGAGGCC ACCCCC CATGGAGGAGGACGAGAACCCCGCTGACGGGAAGACCTACAAGAAGATCAACTGGCTGAAGGTGGCATTATCGCCG
 CAAATGTGACTCCGGTGGGGGTACCTCCTCCTGCTCTTCTGGGGGCGACTGCCCCTTCTGGATGTTCTCTAGTTGACCGGACTTCCCACCGTAATAGCGGC

V Y T E A T P M E E D E K P P L T G K T Y K K I N W L K G G I A
coding sequence of the cDNA of the GRS1

coding sequence of the CDS of the G550A

CCGACAAGCTGGTGACTGTGTCGCCCAACTACGCGACCGAGATCGCTGCCGATGCCGCCGGGGTGTGGAGCTGGACACCGTCATCCGCGCCAAAGGCAT

GGCTGTTTCGACCACTGACACAGCGGGTTGATGCGCTGGCTCTAGCGACGGCTACGGCGGCCGCCACACCTCGACCTGTGGCAGTAGCGCGGTTCCCGTA

A D K L V T V S P N Y A T E I A A D A A G G V E L D T V I R A K G I
coding sequence of the cDNA of the GBSSI

TGAGGGCATTTGTGAACGGCATGGACATTGAGGAGTGGAACCCCAAGACC⁺GAAGTTCTGTCTGCGCCCTACGACCAGAACAGCGTCTACGCCGGCAAG
 ACTCCCGTAACACTTGCCGTACCTGTAACTCCTCACCTTGGGGTTCTGGCTGTTCAAGGACAGACGCGGGATGCTGGCTTGTGCGCAGATGCGGCCCGTTCT

E G I V N G M D I E E W N P K T D K F L S A P Y D Q N S V Y A G K
coding sequence of the cDNA of the CBSS!

Figure 2 (continued 2)

GCCGCCCAAGGAGGCCCTGCAGGCCGAGCTGGGCTGCCTGTGGACCCACCGCCCCCTGTTCGCCCTTCATCGGCCGCTTGGAGGAGCAGAAAGGTG
 CGCGGGCGGTTCCTCCGGGACGTCCGGCTCGACCCGACGACACCTGGGGTGGCGGGGGGACAAAGCGAAGTAGCCGGCGGACCTCCTCGTCTTCCAC
 A A A K E A L O A E L G L P V D P T A P L F A F I G R L E E Q K G
 TGGACATCATCCTGGCCGCCCTGCCCAAGATCCTGGCCACCCCAAGGTGCAGATCGCCATCCTGGGTACCGCAAGGCCGCTACGAGAAAGCTGGTGAA
 ACCTGTAGTAGGACCGCGGGACGGGTTCTAGGACCGGTGGGGTTCACGTTACGGTAGGACCCATGGCCGTTCCGGCGGATGCTCTTCGACCACTT
 V D I I L A A L P K I L A T P K V Q I A I L G T G K A A Y E K L V N
 CGCCATCGGCACCAAGTACAAGGGCCGCGCAAGGGCGTGGTCAAGTTCCTGGCGCCCTGGCGCACATGCTACCGCGCGGCGGACTTCATGCTGGTG
 GCGGTAGCCGTGGTTCATGTTCCCGGCGGTTCGCGCACAGTTCAGAGCCGCGGGGACCGCGGTACGAGTGGCGGCCGCGGTGAAGTACGACCCAC
 A T G T K Y K G R A K G V V K F S A P L A H M L T A G A D F M L V
 CCTTCGCGCTTCGAGGCCCTGCGGCCTGATCCAGCTGCAGCCCATGCATGCTACCGTACCGTGGTAGCCTCCACCGCGGCTTGGTGCACACCGTCA
 GGGAGCGCAAGCTCGGACGCGGACTAGGTGACGTGCGGTACGTGATGCCATGGCACGGGCACCATCGGAGTGGCGCGCGGACCGCTGTGGCAGT
 P S R F E P C G L I O L H A M H Y G T V P V A S T G G L V D T V
 AGGAGGGCGTCACCGGCTTCCACATGGCGGCCCTGAACCCGACAAAGCTGGACGAGGCTGACGCGGACGCCCTGGCGCCACCGTGGCGCGTGGCAGCGA
 TCCCTCCGCGAGTGGCCGAAGTGTACCGGGGACTTGGGGCTGTTCCGACCTGCTCCGACTGCGGCTGCGGGACCGCGGTGGCACGCGGACGGTGGT
 K E G V T G F H M G A L N P D K L D E A D A D A L A A T V R R A S E
 GGTGTTGCGGGCGCGCTACCCCGAGATGGTGGCCAAGTGCATCAGCCAGGACCTGTCTGGTCCAGCCCGCGGAGGAGGGGCTGCTGGAG
 CCACAAACGCCCGCGGATGGGGCTCTACCCCGGTGACGTAGTCGTTGACAGGACCGAGGTTCGGCGGGTCTTCACCTCCCGGACGACCTC
 V F A G G R Y P E M V A N C I S Q D L S W S K P A Q K W E G L L E
 coding sequence of the cDNA of the GBSSI

Figure 2 (continued 3)

GAGGTGGTGTACGGCAAGGCGGCGTGGCCACCGCAAGAGGAGGAGATCAAGGTGCCCGTTGCCGAGAAGATCCCCGGCGGACCTGCCCCGCGTGTCTCT
CTCCACCACATGCGGTTCGCCCGCACCGGTGGCGGTTCCTCTCTAGTTCCACGGCAACGGCTCTTCTAGGGCCGCTGGACGGGCGGCACAGGA
E V V Y G K G G V A T A K K E E I K V P V A E K I P G D L P A V S
ACGCCCCAACACCCCTGAAGCCCGTGTCCGCTCCGTTGGAGGGCAACGGCGCCGCCCAAGGTCCGCCACCCGCCCATGGGCGGTGGCG
TGGGGGGTTGTGGACTTCGGGCACAGGCGGAGGCACCTCCCGTTGCCGCGGCGCGGTTCACGCCGTGGTGGCGGGGCGGTACCCGCGCACCGC
Y A P N T L K P V S A S V E G N G A A P K V G T T A P A M G A W R
CGGACACCCCTCGGGCCCTCGCCCGCCGCCACCCCAAGGTGACCACTACAAGCCCGCCCTGCCCGCACCCGCCAAGCCCAAGACCGCTGGC
GCGTGGTGGGGAGCCCGGAGCGGGCGGCGGTGGGTTCCACTGGTGGATGTTCCGGCGGGACCGGCGGTGGCGGTTCGGGTTCTGGCGACCG
A T T P S G P S P A A T P K V I T Y K P A L P A T A K P K T A G
CTAAGCTGGCCGGTGAGGCTCCACCACCTCGACCTCGGAGAACGGCGCTGCCCTCCAAACGGCAACGGCAACGGTGCCTCGGCCCTCCAAGACCTCGGCTG
GAGTTCGACCGGCCACTCCGGAGGTGGTGGAGCTGGAGCCCTCTGCCCGCAGCGAGGTGCCGTGGCCGTGGCACGGAGCGGAGGTTCTGGAGCCGAC
L K L A G E A S T T S T S E N G A A S N G N G A S A S K T S A
CAAAGCCCTGGTCTCCGCGCCACCGCAAGTCCGCTAAAGCGGCAGTAGCCGCGAGGGCGGACAGCATGAGCGGCTCGACCAAAGCTGTGGCAGG
GGTTCGGGGACCAGAGGCGGCGGTGGGCGTTTCAGGCGGATTCGCCGTCATCGGCGCTCCGCCGCTGTCGTACTCGCCGAGCTGGTTTCGACACCGTCC
A K P L V S A A T R K S A
AACGGCTGTAGCAGCGGCAGGCGCGCCACCGGCGAGGAGCAGGCTTGGCGCAGCGAGGGCGATGAGCTTAGCGGCCGTGAGCATGGCAGGCGGAAACG
TTGCCGACATCGTCCGCGTCCGCGGCGGTGGCGCTCTCTGTCGCAACGCCGCTCGCTCCCGCTACTCGAATCGCCGGGCACTCGTACCGTCCGCCCTTTCG

coding sequence of the cDNA of the GBSSI
noncoding sequence of the cDNA of the GBSSI

Figure 2 (continued 4)

TGTTGCTGAAATGTGGTGCATGAGAGTGTGCTGTAATGAAGTCGGTTTTCGAGACCGGAGAAACGCCGTTTGGTTTGTAGTGCAGGGCTGTG
 ACACATGACTTTACACCACGTACTCTCACAGCAGCAGACATTACTTCAGCCAAACGCCTGGCCTCTTTGCGGCCAAACCAACATCACGTCCCGGACAC

noncoding sequence of the cDNA of the GBSSI

GTTCGGTTTTGCCCCAAGTCCAAAAAGAGTAACGAAACTGTAGCAGTAGCAGAGCACTTGCGGGCGGGGACCAAGCCGCCCTGCGCAGCCTGT
 CAAAGCCAAACGGGTTTCAGGTTTCTTCTCATTTGCTTCGTCATCGTTCGTAACGCGCCGCCCGCTGGTGCAGGCCGGCACGCGTCGGACA

noncoding sequence of the cDNA of the GBSSI

CCTGCCCTCAGCCTTGTAATCGGCGGCAAGAGGGCGGCTCTGTACACTCCATCCAGGATTTTTCAGGCTGCCTGAGAGTTTGCCATTTTGTGG
 GGACGGGAGTCGGAACACTAAGCCGCCGTTCTCCCGCCAGACATGTGAGGTAGGTAAGGTCTCTAAACGTCGACGGACTCTCAAACGGTAAACACCC

noncoding sequence of the cDNA of the GBSSI

GACGTGAGCGGGGACGGCCGCGGCTCTCCTACCGCTCCGGCAACGGAGAAGTGGAGGCGCTGTAGCCCGGTGACCCCCCAATGTAGAGGATG
 CTGCACTCGCCGCCCTGCCGGCGCGGCCGAGAGGATGGCGAGGCGGTGCTCTTCAACCTCCCGCGACATCGGGCCACTGGGGGGTTACATCTCCTAC

noncoding sequence of the cDNA of the GBSSI

GGATACATAAGAGCGTGTGGAATGGTAAAGAGGAGGGGCTGGGTGCGCCCTCGATGGTTTTGTGAGGTGCAGACGGCACCGTCGGCGTCAAAGG
 CCTATGTATTCGCACACCTTACCACCATTTCTCCCGGACCCAGCGGGGAGCTACCAAAACAACCTCCAGCTCGCGTGGCAGCCGACGTTTCC

noncoding sequence of the cDNA of the GBSSI

CCCTCGCAAGGCCCGGTGCTTGGGCTCATTTTTGGTGCCCGTCGATGATGAGAGATTGGCCAGCGGTTTTTTGAGGCTGGCTCGAAGCGAGGGTTGT
 GGGAGCGTTCCGGGCCCCACGGAACCCGAGTAAAAACACGGGCAGCTACTCTCTAACCGGTGCGCCAAAAAACCTCCGACCGAGCTTCGCTCCCAACA

noncoding sequence of the cDNA of the GBSSI

